

NAME \_\_\_\_\_

DATE \_\_\_\_\_

SCORE \_\_\_\_\_

## Geometric Means; Pythagorean Theorem

Simplify the expressions.

1.  $\sqrt{100} =$  \_\_\_\_\_

2.  $2\sqrt{9} =$  \_\_\_\_\_

3.  ~~$\sqrt{50} =$  \_\_\_\_\_~~

4.  $\frac{3}{4}\sqrt{64} =$  \_\_\_\_\_

5.  ~~$\sqrt{3} =$  \_\_\_\_\_~~

6.  ~~$\frac{2}{\sqrt{5}} =$  \_\_\_\_\_~~

Find the geometric mean between the two numbers.

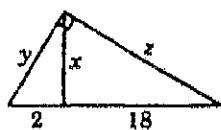
7. 6 and 24 \_\_\_\_\_

8. 3 and 27 \_\_\_\_\_

9. 3 and 64 \_\_\_\_\_

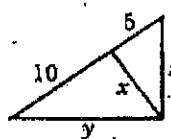
Each diagram shows a right triangle with the altitude drawn to the hypotenuse. Find the values of  $x$ ,  $y$ , and  $z$ .

10.



$x =$  \_\_\_\_\_,  $y =$  \_\_\_\_\_,  $z =$  \_\_\_\_\_

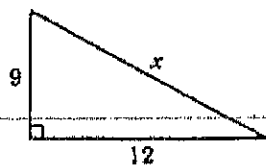
11.



$x =$  \_\_\_\_\_,  $y =$  \_\_\_\_\_,  $z =$  \_\_\_\_\_

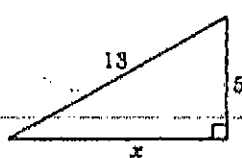
Find the value of  $x$ .

12.



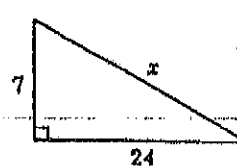
$x =$  \_\_\_\_\_

13.



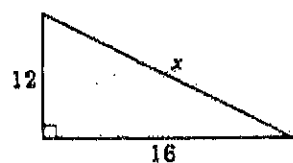
$x =$  \_\_\_\_\_

14.



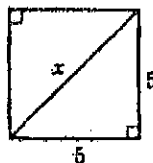
$x =$  \_\_\_\_\_

15.



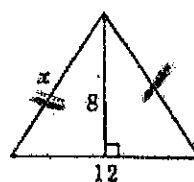
$x =$  \_\_\_\_\_

16.



$x =$  \_\_\_\_\_

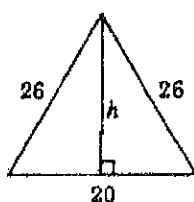
17.



$x =$  \_\_\_\_\_

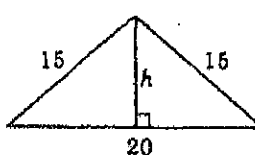
Find the length of the altitude to the base of the isosceles triangle.

18.



$h =$  \_\_\_\_\_

19.



$h =$  \_\_\_\_\_

# TEST 20 The Pythagorean Theorem (Sections 6-1, 6-2)

Directions: Write answers in the spaces provided.

For Questions 1-4, simplify each expression.

1.  $\sqrt{20}$

2.  $2\sqrt{8}$

~~3.  $\sqrt[3]{\frac{8}{9}}$~~

~~4.  $\sqrt[4]{\frac{3}{10}}$~~

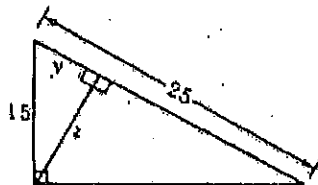
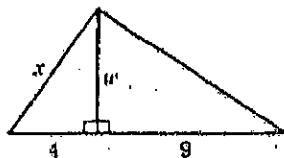
For Questions 5-7, find the geometric mean between the given numbers.

5. 2 and 18

6. 1 and 49

~~7.  $\frac{1}{2}$  and  $\frac{2}{5}$~~

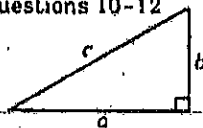
Each figure shows the altitude drawn to the hypotenuse of a right triangle. Find each value in simplest form.

8. a. Find  $w$ .b. Find  $x$ .9. a. Find  $y$ .b. Find  $z$ .

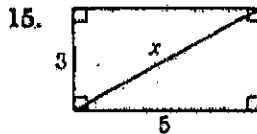
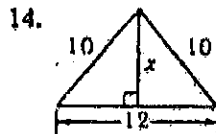
Given the right triangle shown. Find each value in simplest form.

10. If  $a = 8$  and  $b = 6$ , find  $c$ .

Questions 10-12

11. If  $a = 6$  and  $b = 3$ , find  $c$ .12. If  $b = \sqrt{17}$  and  $c = 9$ , find  $a$ .

For Questions 13-15, find the value of  $x$  in each figure in simplest form.



Determine if the  $\Delta$ s are acute, right, or obtuse.

① — 4, 5, 6

③ —  $1, \sqrt{7}, 2\sqrt{2}$

② — 6, 8, 12

④ — 5, 12, 13